

AMENDMENTS TO THE CLAIMS

This listing of claims will replace all prior versions and listings of claims in the application:

LISTING OF CLAIMS:

1. (currently amended): A network system wherein an IP packet according to a service requested by a terminal is sent to one of a plurality of service providers ~~through a plurality of IP networks that each utilize a different network layer protocol and the service is supplied to the terminal through the utilization of an IP packet transmitted from the service provider to the plurality of IP networks~~, said network system comprising:
 - a plurality of IP networks that each utilize a different network layer protocol, the plurality of IP networks including at least a first IP network, a second IP network, and a third IP network;
 - and
 - a packet exchange, provided between the plurality of IP networks, said packet exchange receiving an IP packet in a first network layer protocol format to be sent from the first IP network, determining a destination network among the second IP network and the third IP network based upon a destination address specified by the IP packet in the first network layer protocol format, and converting the IP packet in the first network layer protocol format, wherein the IP packet in the first network layer protocol format is converted to a second network layer protocol format if said second IP network is the destination address that is determined and the IP packet of the first network layer protocol format is converted to a third network layer protocol format if said third IP network is the destination address that is determined~~a format of an IP~~

~~packet to be sent via the plurality of IP networks from a first network layer protocol to a second network layer protocol different from said first network layer protocol so as to match a format of an IP network that is a send destination of the IP packet to be sent,~~

~~wherein connection between the user terminal and the plurality of service providers is unified.~~

2. (currently amended): The network system according to claim 1, wherein the ~~plurality of IP networks include:~~the user terminal is connected to the first IP network, a first service provider is connected to the second IP network, and a second service provider is connected to the third IP network,

wherein said user terminal transmits and receives packets formatted in accordance with said first network layer protocol, said first service provider transmits and receives packets formatted in accordance with said second network layer protocol, and said second service provider transmits and receives packet formatted in accordance with said third network layer protocol

~~a first IP network, which the terminal accesses, and~~

~~a second IP network, which the service provider accesses.~~

3. (currently amended): The network system according to claim 2, wherein the first IP network includes a first server which stores service information of services provided by the first service provider and the second service provider.

4. (previously presented): The network system according to claim 2, wherein the first IP network includes a second server which stores account information of the service which has been provided to the terminal.

5. (currently amended): The network system according to claim 3, wherein the first server stores the format of each of the IP networks and the address of the first service provider and the second service provider.

6. (currently amended): The network system according to claim 1, wherein the packet exchange measures the amount of data of the IP packet ~~for which the network layer protocol has been converted~~, which has been converted to one of said second network layer protocol and said third network layer protocol.

7. (previously presented): The network system according to claim 2, wherein the terminal is connected to the first IP network through an access gateway that authenticates the IP packet.

8. (currently amended): A network system comprising:
a user terminal connected to a first network to be utilized by a user;

a plurality of networks of service providers or online entrepreneurs which provide various services to the user including at least a second network and a third network, wherein ~~connection between the user terminal and the plurality of service providers is unified~~said first network, said second network, and said third network each utilize a different network layer protocol;

an IP network which transmits packet data between the user terminal and the networks through a router according to an IP address;

one or more servers connected to the IP network,

said servers functioning to record information about the user, information about the plurality of service providers or online entrepreneurs, and information about services provided by the networks to the user, and based on the recorded information, to unitarily manage account information of the services provided to the user, and to perform alternative account billing from the service providers or online entrepreneurs to the user; and

a packet exchange, connected to the IP network, said packet exchange receiving an IP packet in a first network layer protocol format from the user terminal via the first network, determining a destination network among the second network and the third network based upon a destination address specified by the IP packet in the first network layer protocol format, and converting the IP packet in the first network layer protocol format, wherein the IP packet in the first network layer protocol format is converted to a second network layer protocol format if said second network is the destination address that is determined and the IP packet in the first network layer protocol format is converted to a third network layer protocol format if said third network is the destination address that is determined~~a packet exchange connected to the IP~~

~~network, said packet exchange converting packet data of the user terminal from a first network layer protocol to a second network layer protocol of a destination network within the plurality of networks, and converting packet data from a source network within the networks from the second network layer protocol to the first network layer protocol of the user terminal,~~
~~wherein the first network layer protocol and the second network layer protocol are different.~~

9. (currently amended): The network system according to claim 8, wherein the packet exchange performs an inverse format conversion to convert return packets from said second IP network or said third IP network to the first network layer protocol format~~converts a packet format of the first network layer protocol to match a packet format of the second network layer protocol.~~

10. (currently amended): The network system according to ~~claim 9~~claim 8, wherein the packet exchange converts the IP packet to said second network layer protocol format using multi-protocol label switching protocol (MPLS) if said second network is determined to be the destination network and converts the IP packet to said third network layer protocol format using IP within IP if said third network is determined to be the destination network~~wherein the packet exchange performs the conversion of the packet data using multi-protocol label switching protocol (MPLS) or IP within IP as a network layer protocol.~~

11. (previously presented): The network system according to claim 8, wherein the user terminal is a personal computer or a portable terminal, capable of processing packet data.

12. (currently amended): A network system comprising:
an IP network through which an IP packet is transmitted;
an access gateway connected to the IP network;
a user terminal which is installed on a user side and is connected to the access gateway by a first network;
a plurality of networks of service providers or online entrepreneurs, including at least a second network and a third network, wherein said first network, said second network and said third network each utilize a different network layer protocol;
one or more servers connected to the IP network that record information about the user and ~~a~~ the plurality of service providers or online entrepreneurs, and record information about services provided by the service providers or online entrepreneurs to the user, and based on the recorded information, said one or more servers unitarily manage account information of the services provided to the user;
a packet exchange, connected to the IP network, said packet exchange receiving an IP packet in a first network layer protocol format from the user terminal via the first network, determining a destination network among the second network and the third network based upon a destination address specified by the IP packet in the first network layer protocol format, and converting the IP packet in the first network layer protocol format, wherein the IP packet in the

first network layer protocol format is converted to a second network layer protocol format if said
second network is the destination address that is determined and the IP packet in the first
network layer protocol format is converted to a third network layer protocol format if said third
network is the destination address that is determined~~a packet exchange connected to the IP~~
~~network, said packet exchange converting packet data of the user terminal from a first network~~
~~layer protocol to a second network layer protocol of a destination network, and converting packet~~
~~data from a source network from the second network layer protocol to the first network layer~~
~~protocol of the user terminal,~~

~~wherein the first network layer protocol and the second network layer protocol are~~
~~different; and~~

~~a plurality of border gateways which connect the packet exchange to a plurality~~the
plurality of networks of the service providers or online entrepreneurs.

13. (previously presented): The network system according to claim 12, wherein the
user terminal is a personal computer or a portable terminal, capable of processing packet data,
and

the access gateway is a remote access server.

14. (previously presented): The network system according to claim 13, wherein the
portable terminal is a portable telephone connected to the IP network .

15. (previously presented): The network system according to claim 12, wherein the user terminal and the packet exchange are each a router.

16. (original): The network system according to claim 12, wherein the packet exchange is an exchange router.

17. (currently amended): The network system according to claim 12, 15 or 16, wherein the packet exchange converts the received packet to a format corresponding to a network layer protocol of ~~the~~a send destination through encapsulating a format of ~~the~~an original IP packet by multi-protocol label switching protocol (MPLS) or IP within IP as a network layer protocol,

wherein the packet exchange converts the IP packet to said second network layer protocol format using MPLS if said second network is determined to be the destination network and converts the IP packet to said third network layer protocol format using IP within IP if said third network is determined to be the destination network.

18. (previously presented): The network system according to claim 17, wherein the original IP packet comprises an IP (internet protocol) header and payload data, the packet data encapsulated by MPLS comprises an MPLS label for path designation, an MPLS label for user ID, an IP header and payload data, and

the packet data encapsulated by IP within IP comprises an IP header for encapsulation, an IP header and payload data.

19. (currently amended): A packet data transmission method wherein packet data transmission for receiving/sending services between a user terminal connected to a first network which utilizes a first network protocol and a plurality of service providers or online entrepreneurs is carried out using a plurality of virtual private network (VPN) platforms corresponding to the service providers, which are respectively connected to at least a second network utilizing a second network protocol and a third network utilizing a third network protocol, said packet data transmission method comprising:

recording, in one or more servers, information about one or more users that utilize the user terminal, and information about the service providers or online entrepreneurs;

upon receiving a request from the user for a service, and only when information about the packet data from the user terminal matches access conditions recorded in the servers,

determining a destination network among the second network and the third network based upon a destination address specified by an IP packet in a first network layer protocol format, and converting the IP packet in the first network layer protocol format, wherein the IP packet in the first network layer protocol format is converted to a second network layer protocol format if said second network is the destination address that is determined and the IP packet in the first network layer protocol format is converted to a third network layer protocol format if said third network is the destination address that is determined~~converting the packet data from the user to a~~

~~protocol and format of a network of a service provider or an online entrepreneur as a send destination by a packet exchange, and sending the converted packet data to the send destination;~~

~~for packet data sent from the service providers or online entrepreneurs, converting the packet data from a network layer protocol utilized by a service provider or online entrepreneur that transmits the packet data to a network layer protocol utilized by the user terminal, and sending the converted packet data to the user terminal; and~~

storing and managing account information about the services provided to the user and providing alternative account billing to the user by the servers,

wherein the first network layer protocol utilized by the first network, the second network layer protocol utilized second network, and the third network layer protocol utilized by the third network are different network layer protocols ~~utilized by the service provider or online entrepreneur is different from the network layer protocol utilized by the user terminal.~~

20. (currently amended): The packet data transmission method according to claim 19, wherein the conversion of packet data by the packet exchange is carried out using multi-protocol label switching protocol (MPLS) as said second network layer protocol if said second network is determined to be the destination network and [[or]] IP within IP as said third network layer protocol if said third network is determined to be the destination network ~~as a network layer protocol, said conversion~~ based on the VPN platform corresponding to the service provider receiving/sending the packet data.

21. (currently amended): The network system according to claim 1, wherein the packet exchange ~~performs the conversion of the packet data~~ converts the IP packet to said second network layer protocol using multi-protocol label switching protocol (MPLS) if said second IP network is determined to be the destination network or IP within IP if said third IP network is determined to be the destination network ~~as a network layer protocol~~.

22. (new): The network system according to claim 1, wherein the packet exchange performs an inverse format conversion to convert return packets from said second IP network or said third IP network to the first network layer protocol.

23. (new): The network system according to claim 12, wherein the packet exchange performs an inverse format conversion to convert return packets from said second network or said third network to the first network layer protocol.

24. (new): The packet data transmission method according to claim 19, further comprising:

performing an inverse format conversion to convert return packets from said second network or said third network to the first network layer protocol